



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/584,409

08/05/2009

Jun-Bo Yoon

078134-0128

9885

22428 7590 03/16/2012  
FOLEY AND LARDNER LLP  
SUITE 500  
3000 K STREET NW  
WASHINGTON, DC 20007

EXAMINER

ANGEBRANNDT, MARTIN J

ART UNIT

PAPER NUMBER

1722

MAIL DATE

DELIVERY MODE

03/16/2012

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/584,409	<b>Applicant(s)</b> YOON ET AL.	
	<b>Examiner</b> MARTIN ANGEBRANDT	<b>Art Unit</b> 1722	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 31 January 2012.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on \_\_\_\_; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 5) ☒ Claim(s) 1-5 and 8-31 is/are pending in the application.
- 5a) Of the above claim(s) 1-5, 8-11, 16-19, 23-26, 28 and 29 is/are withdrawn from consideration.
- 6) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 7) ☒ Claim(s) 12-15, 20-22, 27 and 30-31 is/are rejected.
- 8) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 9) ☒ Claim(s) 1-5 and 8-31 are subject to restriction and/or election requirement.

### Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____.                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____.  | 6) <input type="checkbox"/> Other: ____.                          |

Art Unit: 1722

1. The response of the applicant has been read and given careful consideration. **The restriction is repeated and made final.** The ODP rejection over U.S. Patent No. 7989154 is withdrawn based upon the proper terminal disclaimer filed. The 102 rejections over either of Chang et al., "Shape controlled, high fill factor microlens arrays fabricated by a 3d diffuser lithography and plastic replication method", Opt. Exp. Vol. 12(25) pp. 6366-6371 (12/2004), Eda et al. '509 or Hosada et al. JP 2000-241607 are withdrawn. Responses to the arguments of the applicant are presented after the first rejection to which they are directed.

2. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-5,24-26 and 28-29, drawn to a shaped polymer.

Group II, claim(s) 6,7,12-15,20-22,27 and 30-31, drawn to photoexposure based methods of forming a shaped polymer.

Group III, claim(s) 8-11,16-19 and 23, drawn to shaped metal (rods).

3. The groups of inventions listed above do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

The inventions listed as Groups I-III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Any special technological feature which unites them fails to confer patentability on them as evidenced by the X reference cited in the international search report.

4. A telephone call was made to George Beck on August 5, 2011 to request an oral election to the above restriction requirement, but did not result in an election being made.

Art Unit: 1722

5. Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species or invention to be examined even though the requirement may be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

The election of an invention or species may be made with or without traverse. To preserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable on the elected invention or species.

Should applicant traverse on the ground that the inventions have unity of invention (37 CFR 1.475(a)), applicant must provide reasons in support thereof. Applicant may submit evidence or identify such evidence now of record showing the inventions to be obvious variants or clearly admit on the record that this is the case. Where such evidence or admission is provided by applicant, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

6. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

7. The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and the product claims are subsequently found allowable, withdrawn process claims that depend from or otherwise require all the limitations of the allowable product claim will be considered for rejoinder. All claims directed to a nonelected process invention must require all the limitations of an allowable product claim for that process invention to be rejoined.

In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103 and 112. Until all claims to the elected product are found allowable, an otherwise proper restriction requirement between product claims and process claims may be maintained.

Withdrawn process claims that are not commensurate in scope with an allowable product claim will not be rejoined. See MPEP § 821.04(b). Additionally, in order to retain the right to rejoinder in accordance with the above policy, applicant is advised that the process claims should be amended during prosecution to require the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder.** Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

8. Applicant's election of group II (claims 6,7,12-15,20-22 and 27 (claims 30 and 31 added)) in the reply filed on 09/06/2011 is acknowledged. Because applicant did not distinctly

Art Unit: 1722

and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 1-5,8-11,16-19,23-26 and 28-29 are withdrawn from prosecution

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 12-15 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eda et al. '509, in view of Iguchi JP 02-0061123 and Brown et al. '819.

Eda et al. '509 teaches with respect to figures 3a-3d, the formation of a microlens where the exposure uses a diffuser (62) and mask (60) to form a depression in the (positive acting) resist after development. Figure 2a-d shows the same process forming a protrusion (using a negative acting resist), rather than a depression (16/19-17/14).

Iguchi JP 02-0061123 teaches a photoresist master which is applied to a surface, the resist exposed, developed, a Ni stamper electroformed on the surface, separated from the resist and then used to form duplicates (abstract, figures 1,2,6 and 8 and associated text).

Brown et al. '819 teaches coating a substrate with a resist, patterning the resist to create the desired microlens pattern, this resultant patterns may be metallized using sputtering, or vapor deposition or electroplating, the resist removed and the result used to stamp/mold parts [0032-0033].

It would have been obvious to modify the process of Eda et al. '509 by forming a microlens array in the resist, followed by forming a metal stamper from this as taught by Iguchi

JP 02-0061123 and Brown et al. '819 to enable rapid production of duplicate arrays by embossing without resist development or imagewise exposure.

The applicant argues that the Eda et al. performs an etching to form the lenses and the other references use an electroforming process. This argument fails to recognize that in both cases the resist image corresponds to a microlens pattern and that in forming an embossing master as taught in Iguchi JP 02-0061123 and Brown et al. '819 multiple lenses can be formed rapidly, where the process of Eda et al. results in only the lens etched into the glass substrate.

11. Claims 12-15,20-22,27 and 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al. '935, in view of Eda et al. '509, Brown et al. '819 and Kiyozawa JP 2002-350609.

Watanabe et al. '935 teaches the formation of a stamping master by exposure of a photoresist, heat reflow/sagging of the resist to form the lens shapes (1) and electroforming the result to form a stamping master (2). The use of this stamper so emboss a photocuring resin (4) applied to a substrate (5) and the exposure through the substrate top harden the resin is disclosed. The resin layer can then be used as a transparent master to emboss a further UV/light curable composition (7) and adhere the result to final substrate. (3/41-4/28). The formation of a master by exposure of a photoresist, heat reflow/sagging of the resist to form the lens shapes (21) and electroforming the result to form a stamping master (22). The electroforming of this master to form a master (23) with the opposite polarity and which is then used to emboss a photosensitive layer (24) which is then cured is disclosed. (6/55-7/17).

Kiyozawa JP 2002-350609 teaches the use of negative resists with grey scale exposure through the substrate to form convex lenses (figure 2 and associated text at [0026-0030]) or

Art Unit: 1722

concave lenses (figure 5 and associated text at [0042-0045]. The use of this technique to form other optical devices is disclosed [0046-0047].

It would have been obvious to one skilled in the art to modify the process of Watanabe et al. '935 by using an exposure for producing a grey scale exposure for a microlens array such as that taught by Eda et al. '509 with a negative resist based upon the teachings in Eda et al. '509 and Kiyozawa JP 2002-350609 with a rear side exposure Kiyozawa JP 2002-350609 to form a pattern similar to that of Kiyozawa JP 2002-350609 with a reasonable expectation of success, followed by the electroforming which would involve removal of the residual resist/photopolymer as evidenced by Brown et al. '819.

12. Claims 12-15, 20-22, 27 and 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al. '935, in view of Eda et al. '509, Brown et al. '819 and Kiyozawa JP 2002-350609, further in view of Kerfeld '329.

Kerfeld '329 teaches with respect to figure 2, the formation of a master, the formation of a first generation embossing/stamping master by coating a photopolymer, on the master and then peeling and a second generation master can be formed either by electroplating or photopolymerization. The polarity of the images (recesses or protrusions) is also illustrated. (5/53-6/40 and 2/1703/64). In the process of using a cured photopolymer as the first master, a nickel layer can be formed upon it and a photopolymer coated, cured and then the two masters are separated leaving the nickel layer on the first master. The photopolymer compositions are acrylates which are negative acting (14/3-15).

In addition to the basis above, the examiner cites Kerfeld '329 and holds that it would have been obvious to modify the processes rendered obvious by the combination of Watanabe et



al. '935, in view of Eda et al. '509, Brown et al. '819 and Kiyozawa JP 2002-350609 by forming the metal coating to the photoresist/photopolymer pattern and then using that surface as an embossing/molding surface as taught by Kerfeld '329 for similar optical articles with a reasonable expectation of success given the embossing is in UV/light curable resins in the different references.

13. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

14. Claims 12-15,20-22,27 and 30-31 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-29,31-37 and 39-46 of copending Application No. 12/098180. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims include the same limitations.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

The applicant has asked this rejection be held in abeyance and stated that when the claims are otherwise allowable, a terminal disclaimer might be filed. The rejection is maintained as proper.

15. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

Art Unit: 1722

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARTIN ANGEBRANDT whose telephone number is (571)272-1378. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kelly Cynthia can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Martin J Angebrandt  
Primary Examiner  
Art Unit 1722

/Martin J Angebrandt/  
Primary Examiner, Art Unit 1722  
March 9, 2012